ECE 223 – LABORATORY EXPERIMENT 9

Preparation

1. What is a multiplexer?
2. What is 8x1 multiplexer? Find and draw its pin diagram from your datasheets.
3. We have a Boolean function $f(x, y, z) = y' + x'yz + xy'z + yz$, make the truth table of this function. Implement this function using 8x1 mux, use x, y and z as selection variables.
4. We have a Boolean function $f(x, y, z) = y' + x'yz + xy'z + yz$, make the truth table of this function. Implement this function using 4x1 mux, use x and yas selection variables.
5. We have a Boolean function $f(x, y, z) = y' + x'yz + xy'z + yz$, make the truth table of this function. Implement this function using 2x1 mux, inverter and or gate, use x as selection variable.

   Hint:

   a) We can use 8x1 multiplexer as a 4x1 multiplexer by connecting s_2 *to ground. In this case, we should use the first 4-input lines,* I_0, I_1, I_2, I_3.

   b) We can also use this multiplexer as a 2x1 mux by connecting s_2 *and* s_1 *to ground. The first 2-input lines,* I_0, I_1 *should be used.*

Experiment

Construct (3) and (5) from preparation part.